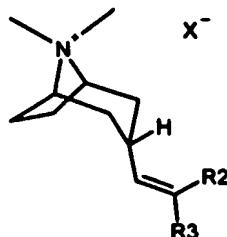


What is claimed is:

1. A compound according to Formula (I) hereinbelow:



5

(I)

wherein:

R2 and R3 are, independently, selected from the group consisting of straight or branched chain lower alkyl groups (having preferably from 1 to 6 carbon atoms), cycloalkyl groups (having from 5 to 6 carbon atoms), cycloalkyl-alkyl (having 6 to 10 carbon atoms), 2-thienyl, 2-pyridyl, phenyl, phenyl substituted with an alkyl group having not in excess of 4 carbon atoms, and phenyl substituted with an alkoxy group having not in excess of 4 carbon atoms; and

X- represents an anion associated with the positive charge of the N atom; such that the compound is in quaternary salt form.

15

2. A compound according to claim 1 wherein the orientation of the alkyl chain attached to the tropane ring is endo.

3. A compound according to claim 2 selected from the group consisting of:

20 (3-*endo*)-3-(2,2-di-2-thienylethenyl)-8,8-dimethyl-8-azoniabicyclo[3.2.1]octane bromide;

(3-*endo*)-3-(2,2-diphenylethenyl)-8,8-dimethyl-8-azoniabicyclo[3.2.1]octane bromide;

(3-*endo*)-3-(2,2-diphenylethenyl)-8,8-dimethyl-8-azoniabicyclo[3.2.1]octane 4-

25 methylbenzenesulfonate;

(3-*endo*)-8,8-dimethyl-3-[2-phenyl-2-(2-thienyl)ethenyl]-8-azoniabicyclo[3.2.1]octane bromide; and

(3-*endo*)-8,8-dimethyl-3-[2-phenyl-2-(2-pyridinyl)ethenyl]-8-azoniabicyclo[3.2.1]octane bromide.

4. A compound according to claim 3 wherein X⁻ is selected from the group consisting of chloride, bromide, iodide, sulfate, benzene sulfonate and toluene

5 sulfonate.

5. A pharmaceutical composition for the treatment of muscarinic acetylcholine receptor mediated diseases comprising a compound according to claim 1 and a pharmaceutically acceptable carrier thereof.

10

6. A method of inhibiting the binding of acetylcholine to its receptors in a mammal in need thereof comprising administering a safe and effective amount of a compound according to claim 1.

15

7. A method of treating a muscarinic acetylcholine receptor mediated disease, wherein acetylcholine binds to said receptor, comprising administering a safe and effective amount of a compound according to claim 1.

20

8. A method according to claim 7 wherein the disease is selected from the group consisting of chronic obstructive lung disease, chronic bronchitis, asthma, chronic respiratory obstruction, pulmonary fibrosis, pulmonary emphysema and allergic rhinitis.

25

9. A method according to claim 7 wherein administration is via inhalation via the mouth or nose.

30

10. A method according to claim 7 wherein administration is via a medicament dispenser selected from a reservoir dry powder inhaler, a multi-dose dry powder inhaler or a metered dose inhaler.

11. A method according to claim 7 wherein the compound is administered to a human and has a duration of action of 12 hours or more for a 1 mg dose.

12. A method according to claim 11 wherein the compound has a duration of action of 24 hours or more.
- 5 13. A method according to claim 12 wherein the compound has a duration of action of 36 hours or more.